Section 9D Surface Water Management

Introduction

Physical Environment

As Shoreview's name implies, the City has a variety of lakes, wetlands and waterways that provide aesthetic, environmental and recreational value to the community. The City has an area of 8,100 acres (12.7 square miles) of land of which approximately 2,400 acres are a combination of surface water and Type 3 to 7 wetland features. Portions of three major watersheds exist with in the City (**Map 9D-1**). The three Watershed Management Organizations (WMOs) include the Grass Lake Watershed encompassing approximately 3,100 acres, the Rice Creek watershed encompassing approximately 4,650 acres and the Vadnais Lake Watershed encompassing approximately 350 acres.

In addition to jurisdiction by the WMOs, a number of lakes, wetlands and creeks are included on the State of Minnesota Inventory of Protected Waters, and so are under the jurisdiction of the Minnesota Department of Natural Resources (**Map 9D-2**). Of the eight lakes in Shoreview, five have public boat access facilities operated by Ramsey County Parks and the water quality in these five lakes supports full body contact recreational uses (**Map 10-1**).

The City is now almost fully developed and will rely on infill and redevelopment to meet the changing needs of residents. Overall, the low-density residential development pattern will remain with some areas transitioning to higher density residential uses, employment centers, and shopping areas. Other Chapters of this Plan fully discuss the City's goals for land use and economic development that will guide development during the life of this Plan. The City recognizes the many effects land development has on surface waters and the natural environment. As a developed community, the City has a challenging surface water resources environment, with large areas of the City developed prior to establishment of surface water regulations.

The geology, soils, and other physical features that exist in the City are described in other chapters of this Plan, including Land Use (Chapter 4), Natural Resources (Chapter 11), Water Supply (Chapter 9C), and Park and Open Space (Chapter 10). Surface Water Management is interrelated to these other elements of the Plan, and so there is necessarily overlap and repetition with the information presented in those Chapters of the Plan.

Regulatory Environment

The regulatory environment for surface water management includes many Federal, State, and local agencies.

Federal Government

Federal programs and regulations that affect how the City manages surface water include the Clean Water Act (CWA) and National Pollutant Discharge Elimination System (NPDES) Phase II Storm Water Permit Program.

The CWA regulates pollutants in surface water and includes provisions that regulate discharge of material into waters of the United States, including wetlands. The Environmental Protection Agency develops and interprets policy for Section 404 permitting and the Army Corps of Engineers administers the permitting process.

As an amendment to the CWA, the NPDES program requires owners of Municipally Separated Storm Sewer Systems (MS4) to prepare and implement a Storm Water Pollution Prevention Program (SWPPP) and apply for the permit with the Minnesota Pollution Control Agency (MPCA), which administers the Phase II MS4 program in the state.

State of Minnesota

State agencies responsible for surface water include the Minnesota Board of Water and Soil Resources (BWSR), the MPCA, and Minnesota Department of Natural Resources (MN DNR).

BWSR is the administrative agency for the soil and water conservation districts, watershed districts, metropolitan watershed management organization, and county water managers. The agency works with local government to protect and enhance the State's soil and water resources by implementing the states soil and water conservation policy, comprehensive local watershed management, and the Wetland Conservation Act (WCA). The purpose of the WCA is to maintain and protect Minnesota's wetlands and the benefits they provide. BWSR administers the act and the MN DNR enforces it.

The MN DNR also enforces shoreland management standards for certain lakes and rivers. The Shoreland Management Act regulates all land within 1,000-feet of a lake and 300-feet or a river and its designated floodplain. The City adopted a Shoreland Ordinance in 1992, and the regulations have been amended in 1994, 2000, and 2004. The Ordinance has been approved by the MN DNR.

Local Governement – City of Shoreview and Watershed Management Organizations

The programs that drive the regulations for management of surface water within the City principally include, but are not limited to, the State's Metropolitan Surface Water Management Program (MSWMP) and Watershed Management Organizations (WMO).

The purpose of the MSWMP is that through policies and thoughtful program implementation, goals for proper water and wetland resource management can be realized and water quality can be protected. Regulations for this program are set forth in Minnesota Statutes 103B.201 to 103B.255, and Minnesota Rule, Chapter 8410. These Statutes and Rules require the preparation of watershed plans by WMOs and the preparation of local water management plans that are consistent with the respective WMO plans.

As noted above, Shoreview is located within three major watershed districts: the Rice Creek Watershed District (RCWD); the Grass Lake Watershed Management Organization (GLWMO), and; the Vadnais Lake Area Watershed Management Organization (VLAWMO). The watershed districts act as the local unit of government for surface water management and have the authority to adopt rules to regulate, conserve, and control the use of water resources within the district. The City of Shoreview works with the districts and the City's current Surface Water Management Plan (SWMP) was review and approved by GLWMO and RCWD. VLAWMO does not have jurisdictional authority within the City but was included in the planning and review process of the SWMP.

The City complies with the agencies, programs, and various regulations listed above and intends to remain in compliance into the future.

The natural environment remains relatively static in that the City's geology, soils, lakes and wetlands are set in place. The regulatory environment is dynamic, and the City must maintain goals, policies and implementation techniques that reflect the changing regulations for surface waters in the City, and the changing conditions that result from actions that affect surface waters and stormwater runoff.

Surface Water Management Plan

The Second Generation SWMP was adopted in 2005, and establishes a guide for surface water activities throughout the City. The SWMP is intended to remain dynamic by providing new information, ideas, methods, standards, and management practices. An electronic copy is available on the City website.

The City reviews the plan and residents or businesses within the City can request amendments to the plan. The City Council and the WMO's determine whether or not to approve the proposed amendment.

The SWMP includes an inventory of the natural resources found in the community. This information is also included in the Comprehensive Plan, in this Chapter and in Natural Resources – Chapter 11.

- National Wetland Inventory (NWI) wetlands (**Map 9D-3**)
- Wetland Classification (**Map 9D-4**)
- Watershed sub-basins (**Map 9D-5**)

The SWMP established nine main goals each with corresponding policies and implementation actions. The nine goals are intended to address the following aspects of surface waters:

1. Water Quality
2. Water Quantity (Flooding)
3. Wetlands
4. Erosion Control
5. Groundwater
6. Recreation, Habitat, and Shoreline Management
7. Public Participation, Information, and Education
8. Maintenance and Inspection
9. Regulatory Responsibility

Action-Implementation Plans were developed for each of the nine goals and each water body category in Shoreview. The Action Plans identify current or potential problems related to achieving the stated goals and recommended approaches and/or solutions for addressing the problems. The Action-Implementation Plan may include specific activity steps, reference to the applicable NPDES Permit Best Management Practice (BMP), available resources, and the means of measuring the completion of the activity step and a target date for completion.

Concurrent with the development of the SWMP, the City collected and analyzed the information necessary to update the Flood Insurance Rate Map (FIRM), and submitted a Letter of Map Revision (LOMR) to the Federal Emergency Management Agency. The LOMR was accepted by FEMA in March 2005 (**Map 9D-7**).

National Pollutant Discharge Elimination System / Storm Water Pollution Prevention Program

The NPDES Phase II storm water permit program in urban areas is designed to further reduce adverse impacts to water quality and puts controls on runoff that have the greatest likelihood of causing continued environmental degradation.

The regulatory program in Minnesota covers three aspects of storm water runoff: Industrial Sites, Municipally Separated Storm Sewer Systems (MS4), and construction sites. The City of Shoreview qualifies as an MS4 and is responsible for storm water that discharges to waters of the state coming from within the jurisdiction of the City and conveyance systems owned by the City such as storm drains, ditches, and storm water ponds. The City was required to apply for an NPDES permit and develop a SWPPP to address stormwater discharges.

The City submitted the initial NPDES permit application and SWPPP in 2003 and subsequent annual reports summarizing the status of compliance with permit conditions. A revised NPDES permit application and SWPPP was submitted in 2006. An electronic copy is available on the City website.

The SWPPP addresses six minimum control measures required as part of the NPDES permit process. To address each of the minimum control measures the SWPPP provides a description of each Best Management Practice (BMP), an implementation, measurable goals that determine the success or benefit, and the person responsible for its completion. The minimum control measures are listed below:

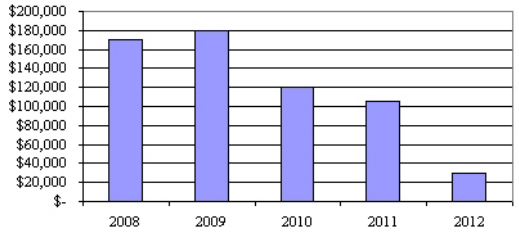
1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Controls
5. Post Construction Storm Water Management for New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Surface Water Utility Fee

The City has adopted a surface water utility fee to fund repair and replacement of existing conveyance systems and provide a funding source for implementation of goals listed in the SWMP and BMPs listed in the SWPPP. Estimated operating costs, capital costs, and debt payments for insuring the integrity of the system are included in the City's Comprehensive Infrastructure Replacement Plan and Policy, with a time horizon of 50 years. The City's Capital Improvement Plan (CIP), which has a 5-year time horizon, includes a more detailed description of projects. A copy of the portion of the current CIP showing projects addressing surface waters is attached ***(Table 9D-1).***

Table 9D-1

Description	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Surface Water Improvements:					
Commons park storm pond dredging	100,000	-	-	-	-
Arbogast/Lake Emily pretreatment chamber	70,000	-	-	-	-
Turtle Lane pre-treatment facility	-	80,000	-	-	-
Storm pond dredging	-	100,000	-	105,000	-
Lake Wabasso pre-treatment facility	-	-	120,000	-	-
Update storm lift station controls	-	-	-	-	30,000
TOTAL	$ 170,000	$ 180,000	$ 120,000	$ 105,000	$ 30,000



The major expenditures shown in the current CIP relate to pre-treatment of stormwater that would otherwise directly discharge to high quality natural basins or to improve the pollutant removal capabilities of existing stormponds. These activities are generally related to improving water quality.

The City's storm water management system is funded with this utility, including storm sewer and storm water ponds (**Map 9D-6**).

Impaired Waters

The City does have five water bodies that appear on the 2008 MPCA Final Draft list of impaired waters, and these are listed below:

- Rice Creek (Aquatic Macroinvertebrate and Fish bioassessments)
- Island Lake (Nutrient/Eutrophication/Biologic indicators)
- Turtle Lake (Mercury in fish tissue)
- Snail Lake (Mercury in fish tissue)
- Lake Owasso (Mercury in fish tissue)

Two of these, Snail and Owasso, are included in the Statewide Mercury Total Maximum Daily Load (TMDL) study, which was approved by the United States Environmental Protection Agency in 2007. This study identifies that deposition of mercury from the atmosphere is the principal component of the mercury concentration in game fish. No local point or non-point sources of mercury were identified in Shoreview and no City action is required.

At this time a Total Maximum Daily Load (TMDL) has not been established for the other three impaired waters located within the City. Once MPCA funding is allocated the WMO where is the impaired water is located will act as the LGU and initiate the study, and so for each of the three impaired waters within the City, the RCWD will be responsible for the study. The City of Shoreview will work with the RCWD in an advisory role in the development of the study and establishment of the TMDL. After the study is complete and a TMDL has been established the City will review the SWPPP to determine if it is adequate to meet the TMDL's Waste Load Allocations. If the SWPPP is not meeting the applicable requirements, schedules, and objectives of the established TMDL, the SWPPP will be modified as appropriate.

Although TMDL limits have not been established for the impaired waters within Shoreview's boundary the City will review the existing SWPPP to determine if modifications can be made to reduce the impact of our storm water discharge.

Goals, Policies and Recommended Actions

The City will rely on the SWMP as the primary mechanism for managing surface water resources. The SWMP establishes the following Goals.

Goals

1. **Water Quality** - Maintain or improve water quality to meet established standards consistent with the intended use and classification, with special focus on Category I water bodies *and impaired waters*.

2. **Water Quantity (Flooding)** - Control flooding and protect property while minimizing public expenditures necessary to control volumes and rates of runoff.

3. **Wetlands** - Preserve and improve wetlands acreage, functions and values and achieve no net loss of wetlands in conformance with the Minnesota Wetland Conservation Act and associated rules.

4. **Erosion Control** - Minimize soil erosion and sedimentation.

5. **Groundwater** - Protect the quality and quantity of groundwater resources and promote groundwater recharge.

6. **Recreation, Habitat and Shoreline** - Recreation, habitat and shoreline management. Protect and enhance fisheries and wildlife habitat, surface water recreation and shorelands.

7. **Public Participation, Information and Education** - Public participation, information and education. Provide information and educational resources to improve knowledge and promote an active public role in management of water resources.

8. **Maintenance and Inspection** - Preserve function and performance of public infrastructure through continued implementation of a maintenance and inspection program.

9. **Regulatory Responsibility** - Maintain primary responsibility for managing water resources at the local level but continue coordination and cooperation with other agencies and organizations.

The SWMP identifies policies and implementation plans for each of these goals, and the City is committed to adhere to those policies and plans throughout the life of this Plan. Furthermore, the SWMP is annually reviewed by the City and updated as deemed necessary. Reliance on the SWMP as the principal guiding document for surface waters allows the City flexibility to respond to changing circumstances and opportunities for improving and protecting valuable surface water resources. With that basis, the following policies will guide the City:

Policies

A. Surface water management shall meet the standards of the Rice Creek Watershed District and the Grass Lake Watershed Management Organization. The Municipal Code and SWMP shall

be reviewed regularly and amended as necessary to remain consistant with the plans and requirements of these agencies.

B. The City will insure the Shoreland Management Ordinance remains consistent with the requirements of the Department of Natural Resources.

C. The City will remain in compliance with MS4 NPDES/SWPPP requirements.

D. The City will encourage development and redevelopment activity to incorporate regional storm water ponds in their storm water management plans.

E. The City will require compliance with erosion control regulations for projects disturbing soil within the City, and the use of BMPs on these sites.

F. The City, along with other agencies, will work to develop education and outreach programs to promote practices that enhance surface waters in the City.

G. The City will promote infiltration of surface water, for development projects and for individual residential properties.

H. The City will encourage vegetative buffers around ponds and wetlands. The width and vegetation type shall reflect the wetland classification and its function.

I. Groundwater recharge areas around City wells shall be protected.

Similar to policies, the SWMP also details implementation actions, which the City intends to use as the principal policy instrument for managing surface waters. The City expects the following actions will occur:

Recommended Actions

1. The City will work to develop and implement a program to detect and eliminate illicit discharges into the storm water system.

2. The City will review the Municipal Code requirements that regulate impervious surfaces for opportunities to reduce hard surface on development and redevelopment sites. The City will encourage the use of pervious materials for hard surfaced areas.

3. The City will participate in TDML studies and implementation of recommended actions for impaired waters. The City will conduct activities to improve the quality of impaired waters.

4. The City will conduct an annual review of the SWMP and SWPPP to insure these are up-to-date, and consistent with WMO, state and federal regulations.

5. The City will continue to monitor private Individual Sewage Treatment Systems within the City and to track required system maintenance based on annual review of records.

6. The City will review the monitoring of private ponds for compliance with maintenance activities.

7. The City anticipates adopting a Wellhead Protection Plan during the life of this Plan (See Chapter 9C – Water Supply).

8. The City will continue to participate in education and outreach programs to promote resident participation in addressing these surface water goals.

9. The City will explore incentives to encourage property owners to implement stormwater BMPs on their property.

10. The City will consider the Goals and Policies for surface water management while conducting maintenance activities and constructing public improvements.

11. The City anticipates that in 2009 regulations for erosion and sediment control will be amended to better reflect Ctiy practice.